

Figure 1

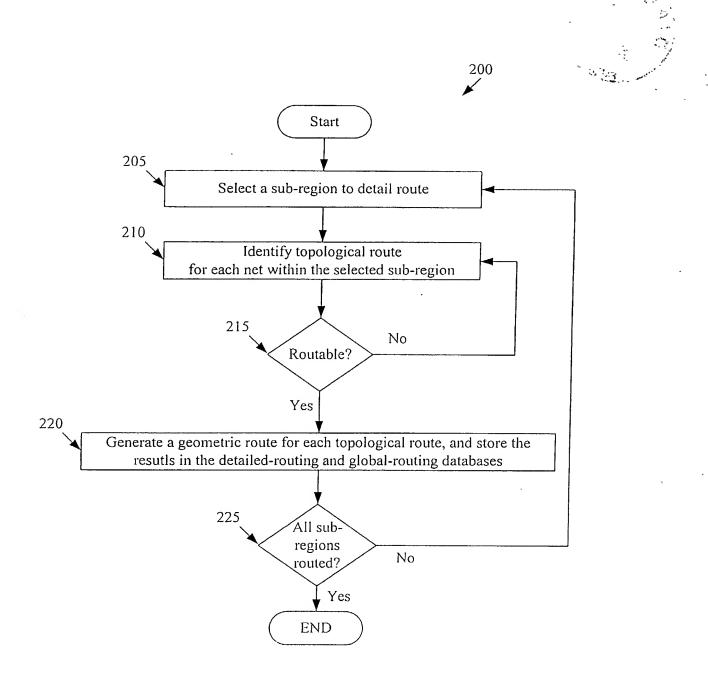
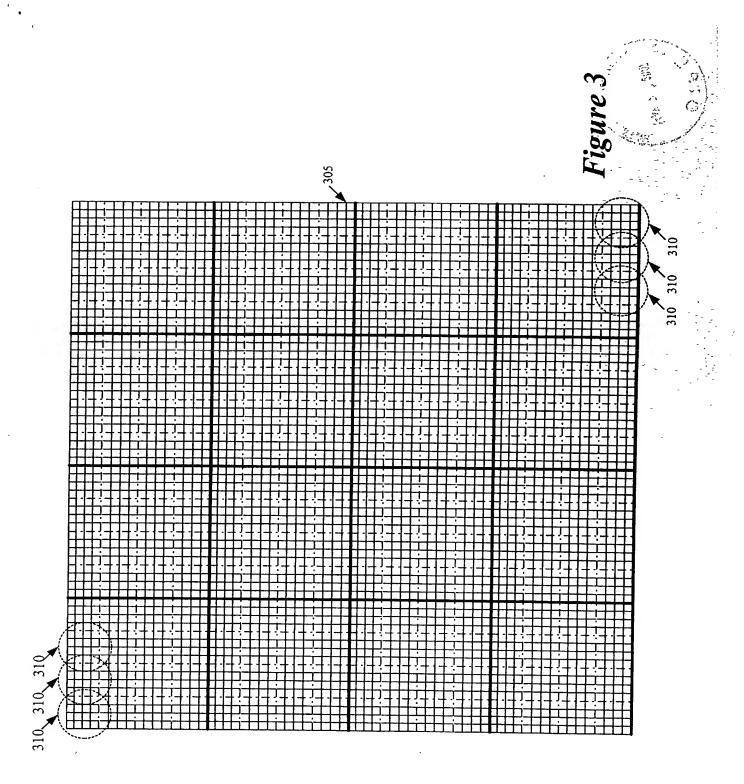
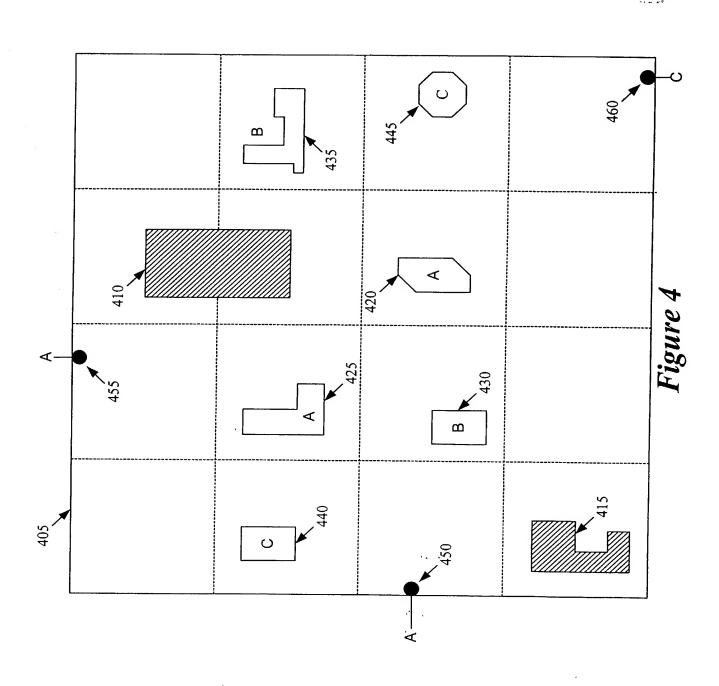


Figure 2







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-List of Geometries

- -- Each Geometry including a sequence of points & layer assignment
 - -Bounding box of the region
 - -Array of layer properties
- --Minimum wire size
 - --Minimum spacing
 - --Via sizes
- --Cost/Unit
- -Netlist specifying a number of nets
- -- Each net specifying a set of pins
- -- Each port specifying a set of geometries -- Each pin specifying a set of ports

-List of Geometries

- -- Each Geometry including a sequence of points & layer assignment -- List of connection nodes inside each pin geometry
 - -Bounding box of the region
 - -Array of layer properties
- --Minimum wire size
 - --Minimum spacing --Via sizes
- --Cost/Unit
- -Netlist specifying a number of nets
- -- Each net specifying a set of pins
- -- Each port specifying a set of geometries -- Each pin specifying a set of ports
 - -For each layer, a graph specifying
 - --Nodes
- --Edges
 - --Faces

Face
-Reference to 3 edges
-Reference to 3 nodes
-Up to two references for up to two
face item

006

-Constrained

-Linked list of items on the edge starting with one of the edge's nodes

and ending with its other node

-Two references for up to two faces of

the edge -Capacity -Flow

Edge

Figure 8

Figure 9

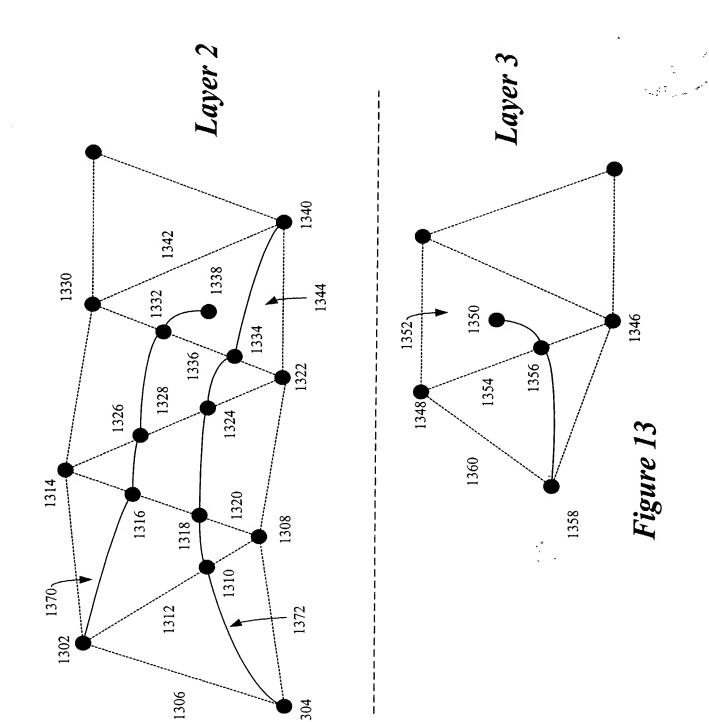
Constraining Points and Distances

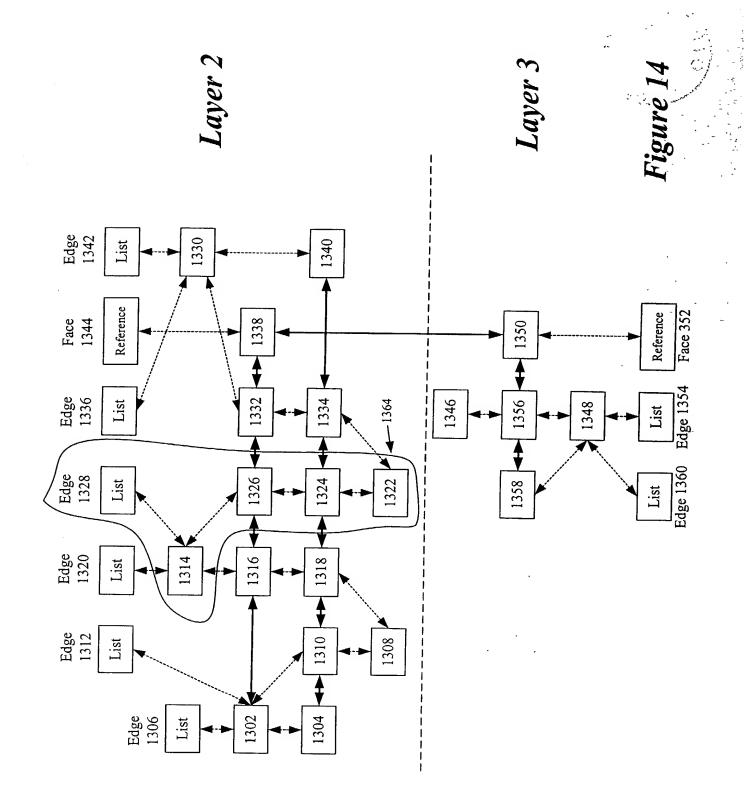
adjacent topological items in the same -Bounding polygon that defines legal -A pair of via-path references for up -Up to 3 planar-path references for and down topological via items Face Item -Reference to its face face item locations -A pair of via-path references to up and down topological via -One or more planar-path references to adjacent topological -Net Identifier -For each edge, an edge reference to the next or previous planar path -Vertex number identifying the vertex of the geometry -A references to list of edges connected to the node Figure 10 -A reference to the geometry of the node Node items in the same planar path topological item on the edge -Location of the node -Net Identifier adjacent topological items in the same -A pair of edge references to the next and previous topological item on the -A pair of planar-path references to Edge Item -Reference to its edge

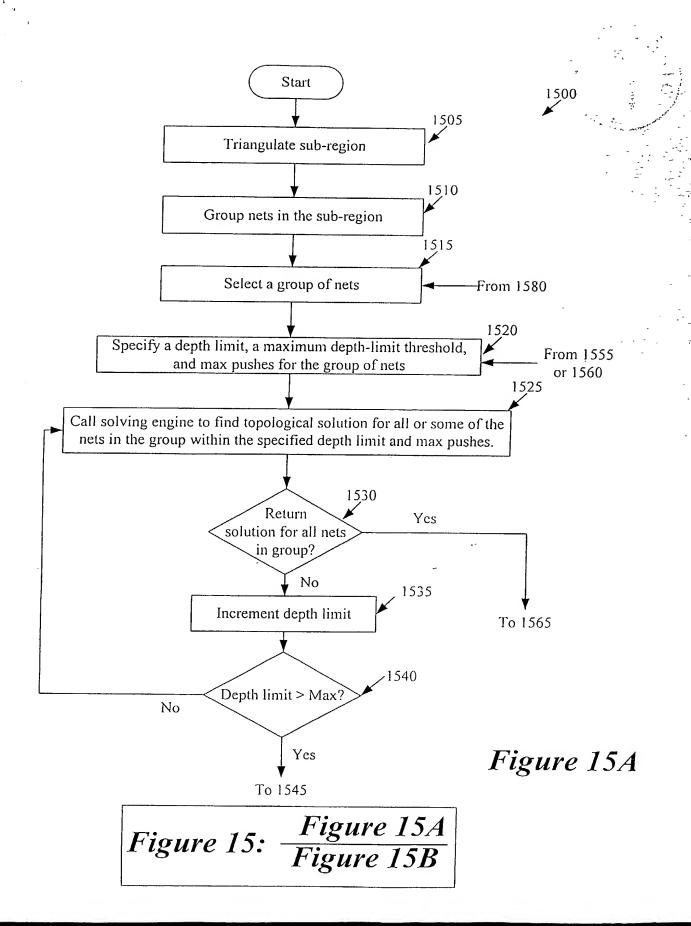
-Net Identifier

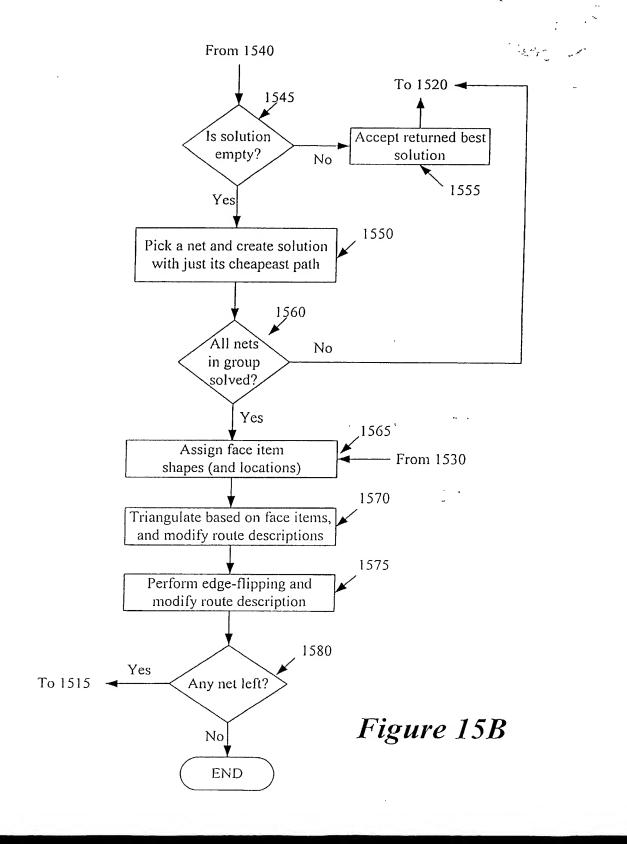
planar path

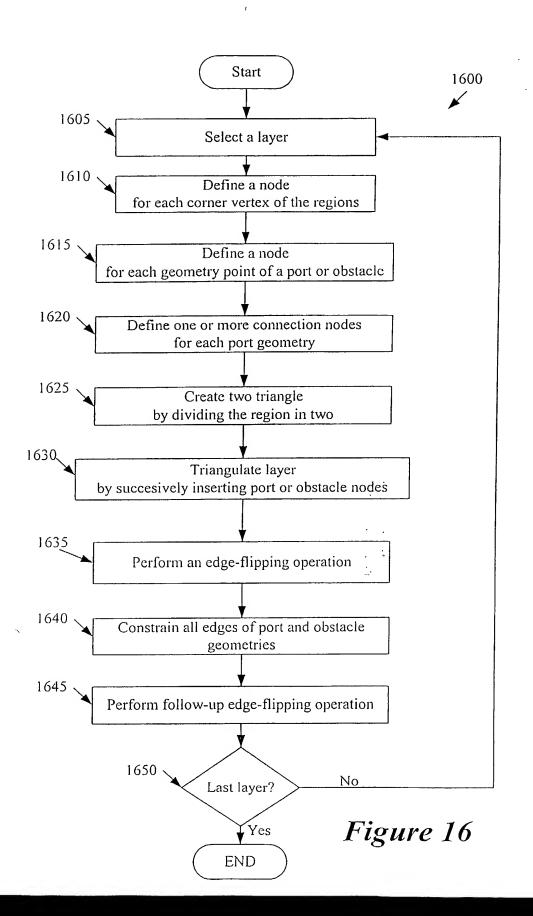
Figure 1.

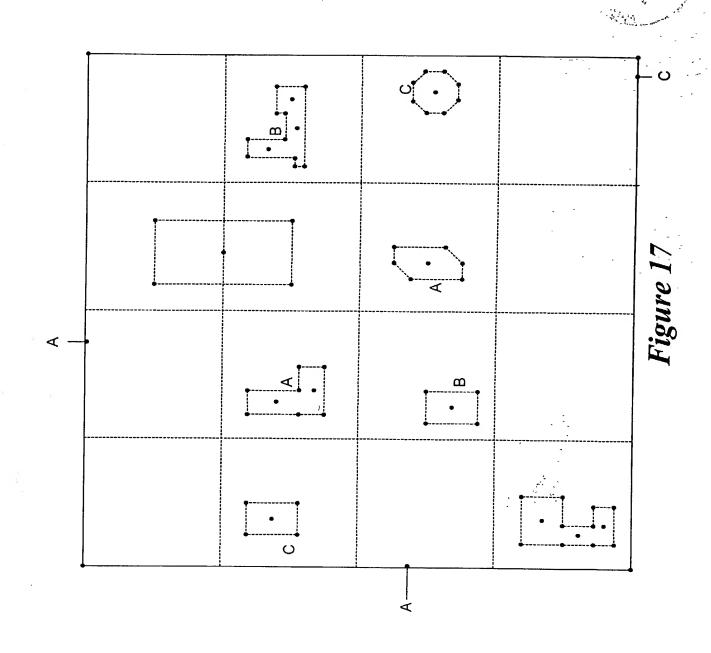


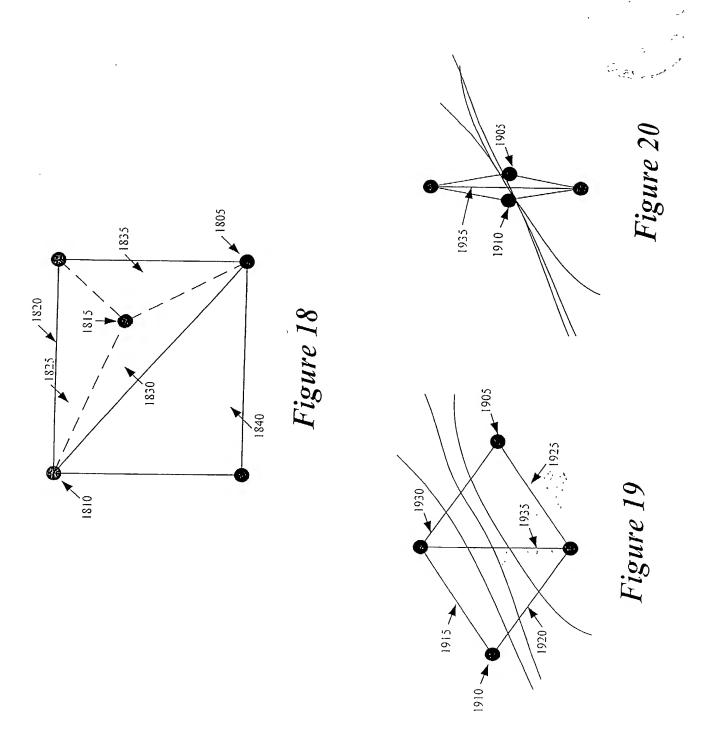


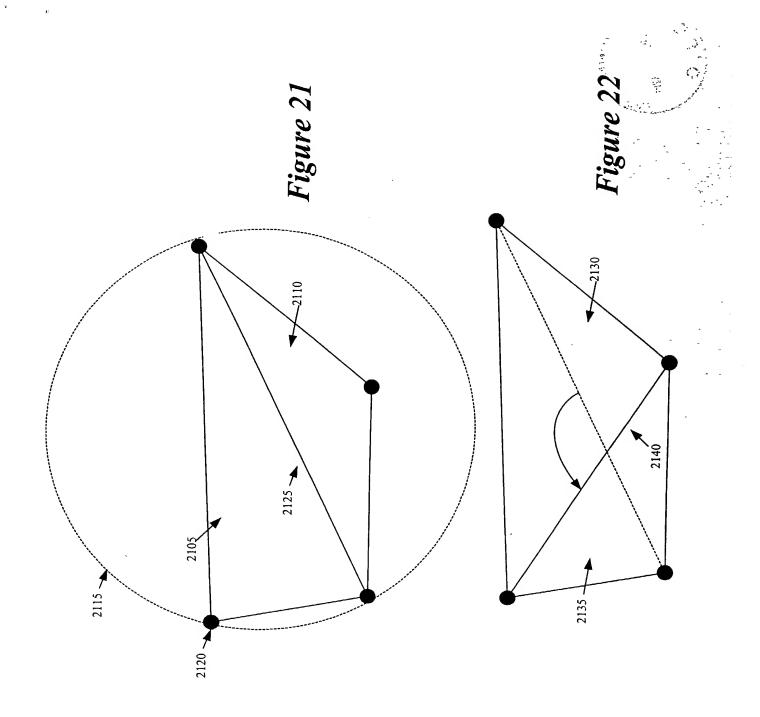


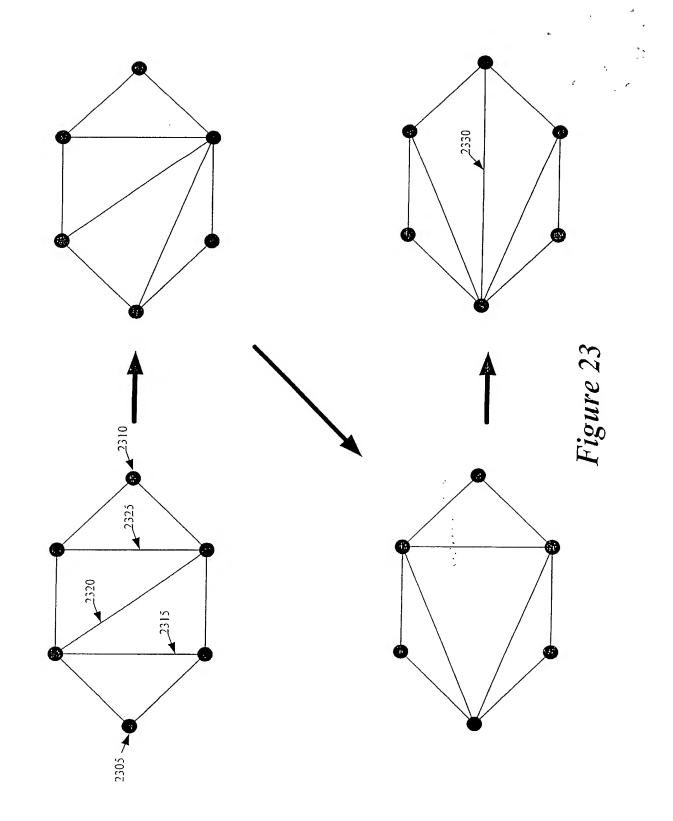


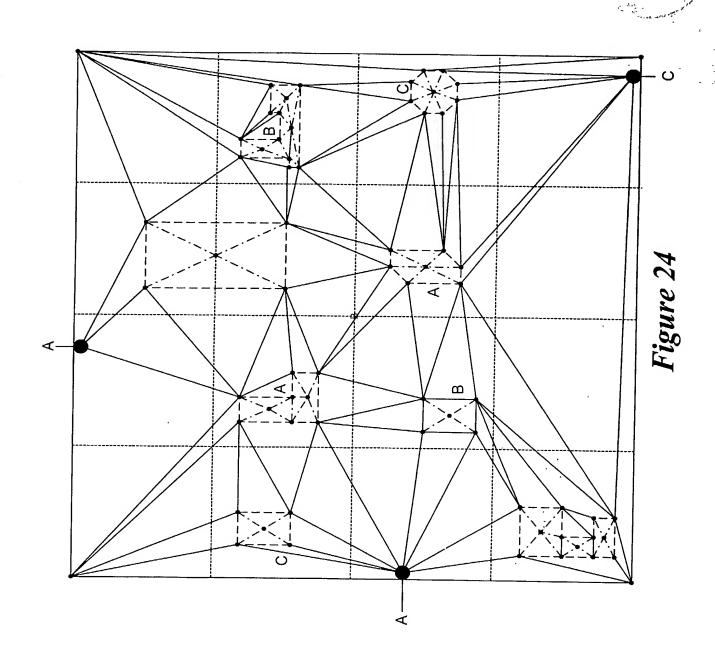












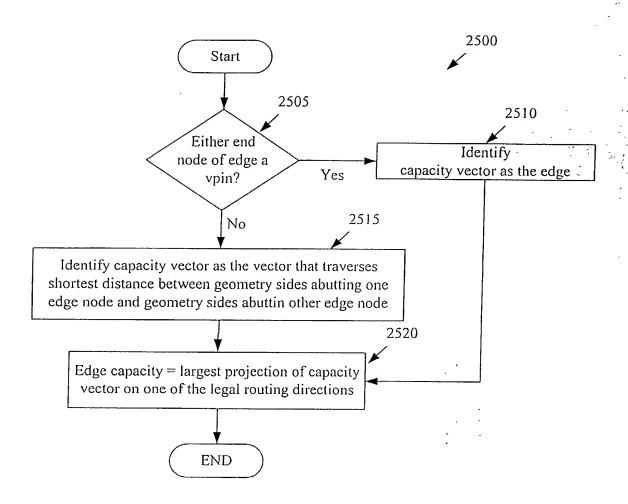


Figure 25

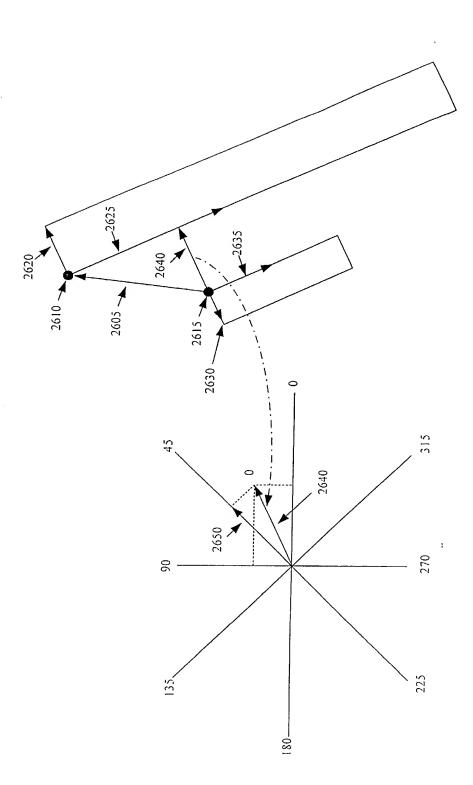


Figure 26

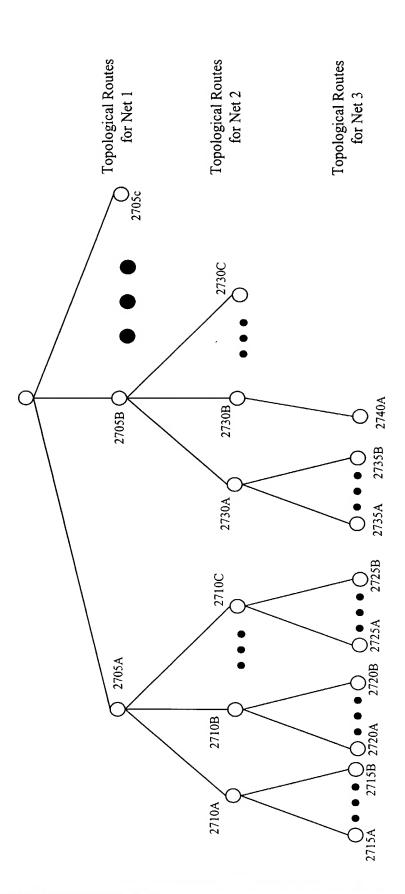


Figure 27

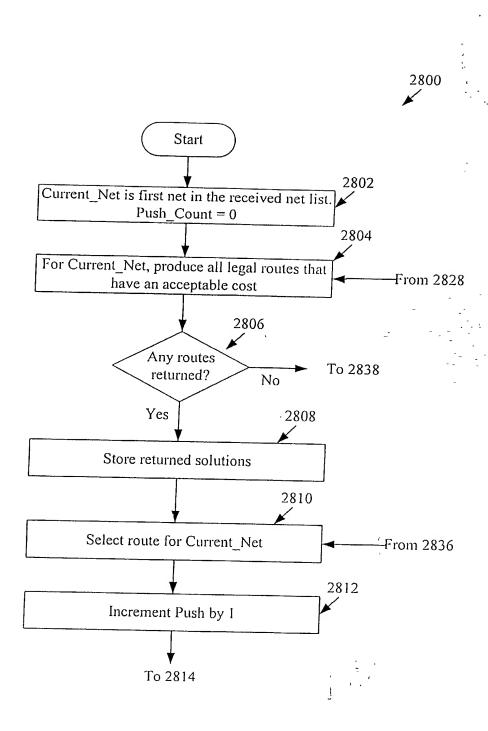
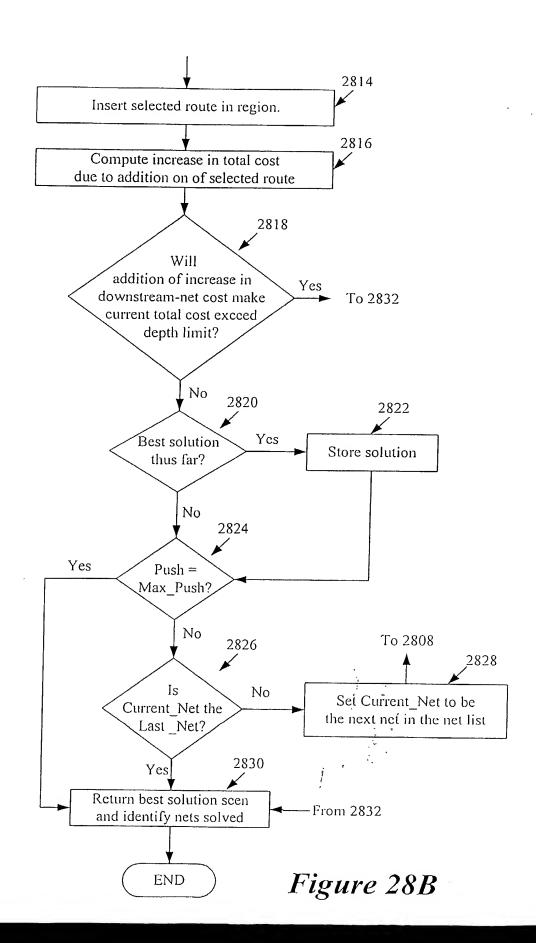


Figure 28A

Figure 28: Figure 28A
Figure 28B
Figure 28C



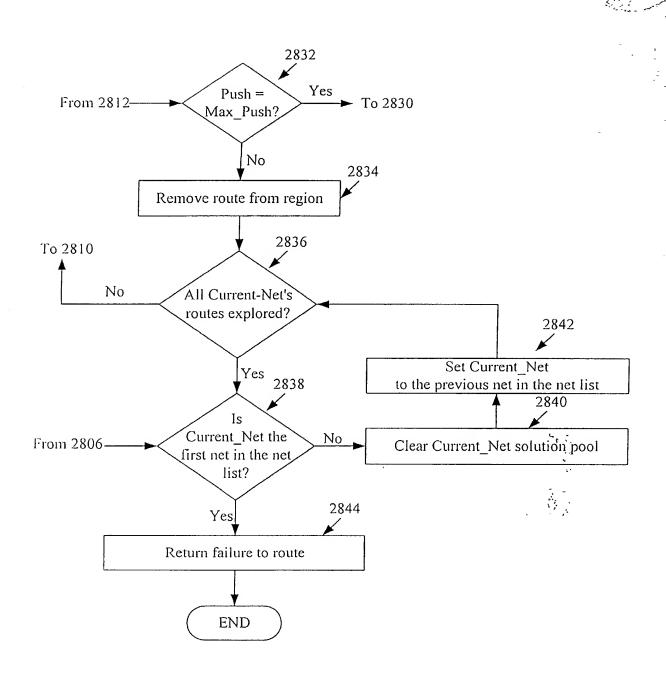


Figure 28C

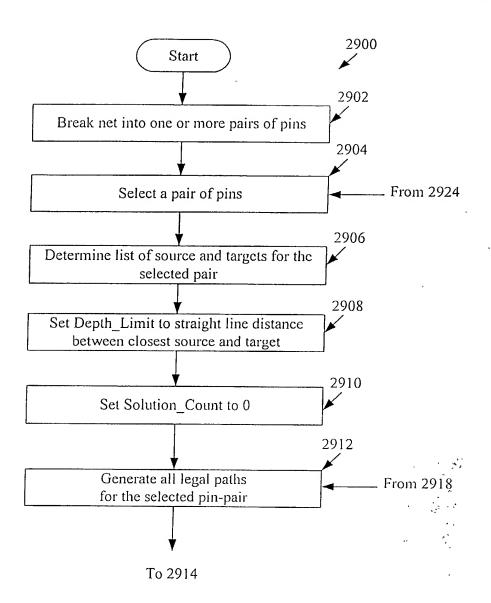
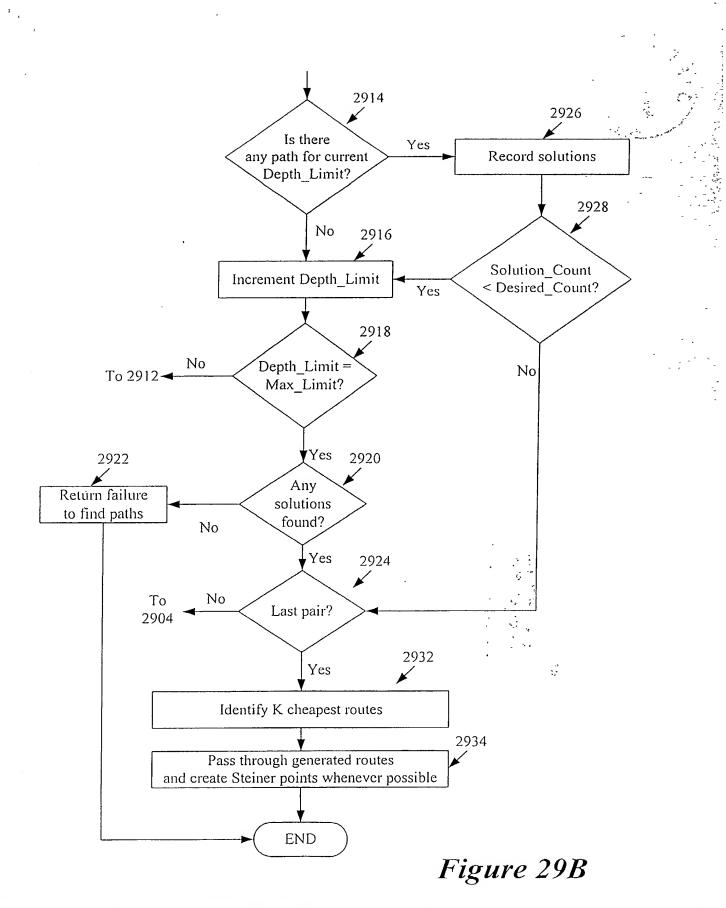
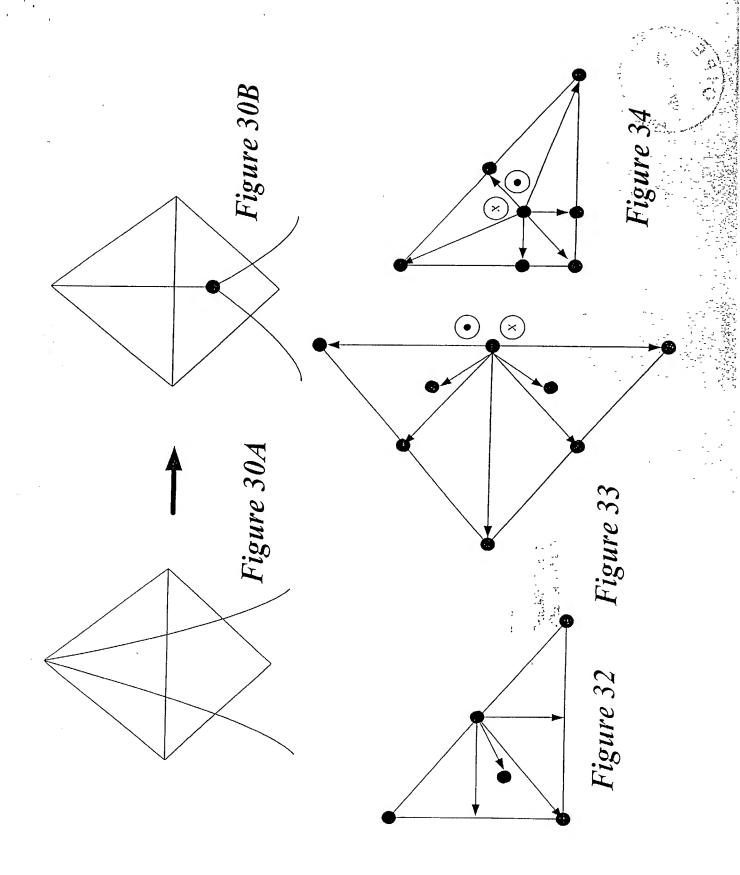


Figure 29A

Figure 29: Figure 29A Figure 29B





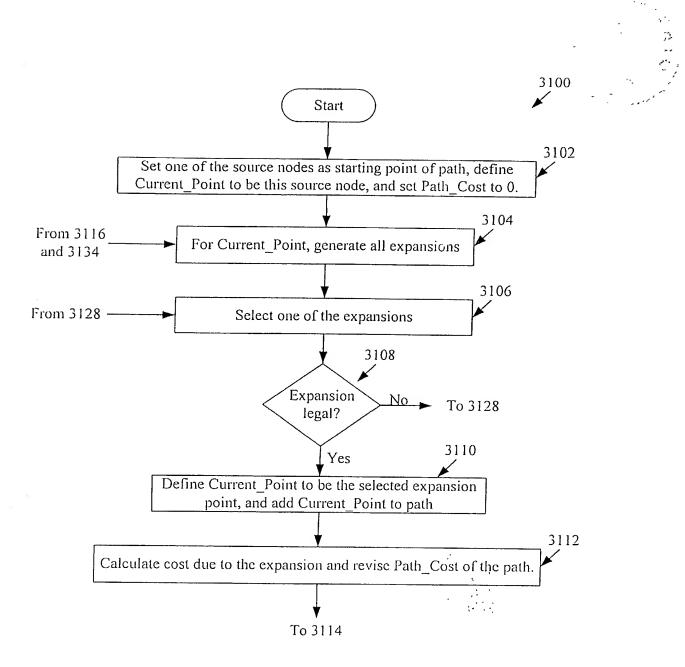
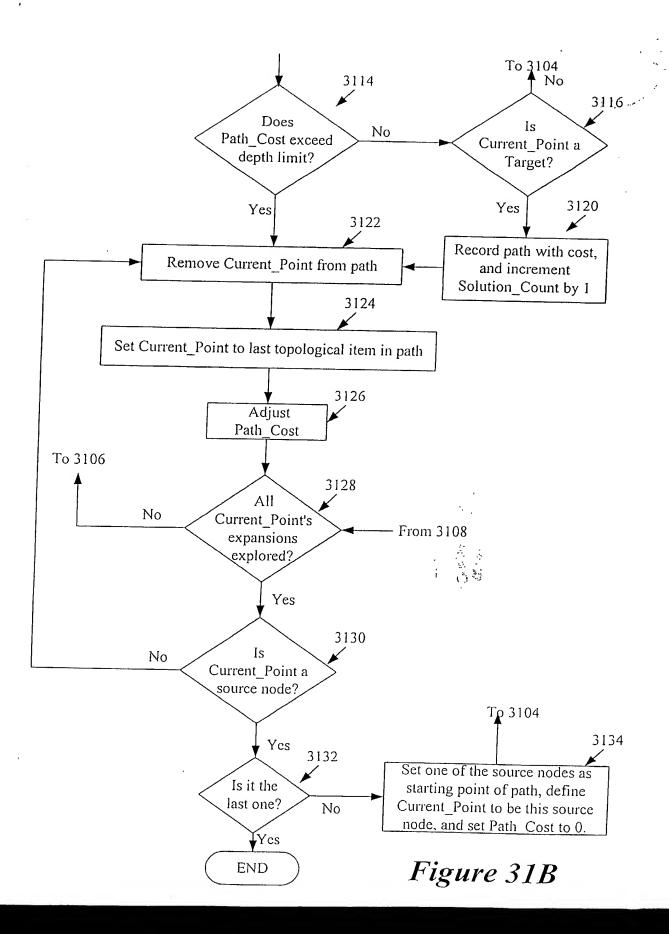
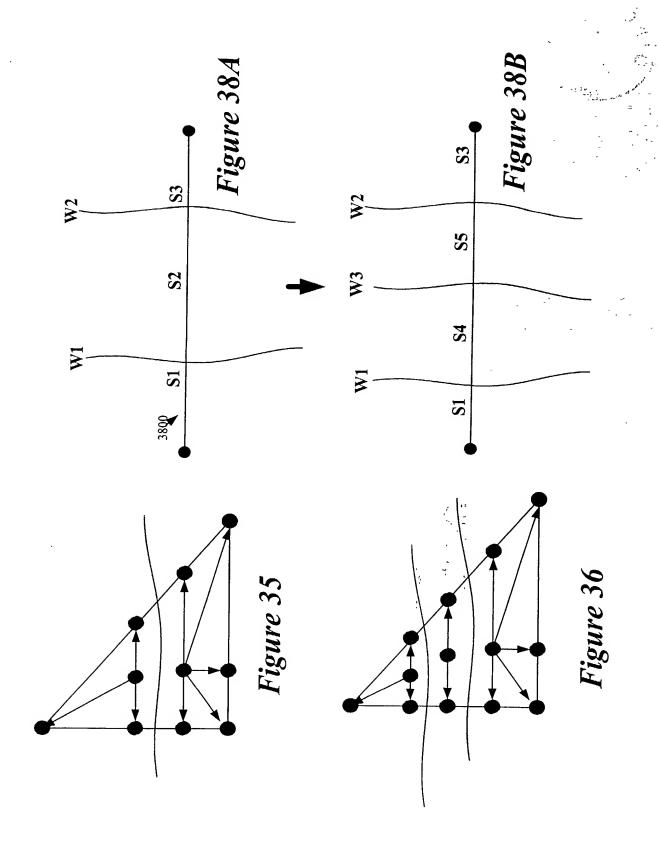


Figure 31A

Figure 31: Figure 31A Figure 31B





From:	To: Node	Face Item	Edge Item
Node	• Planarity • Vias	• Vias	 Planarity Vias Edge Capacity
Face Item	• Vias	• Vias	• Vias • Edge Capacity
Edge Item	• Planarity • Vias	• Vias	 Planarity Vias Edge Capacity

Figure 37

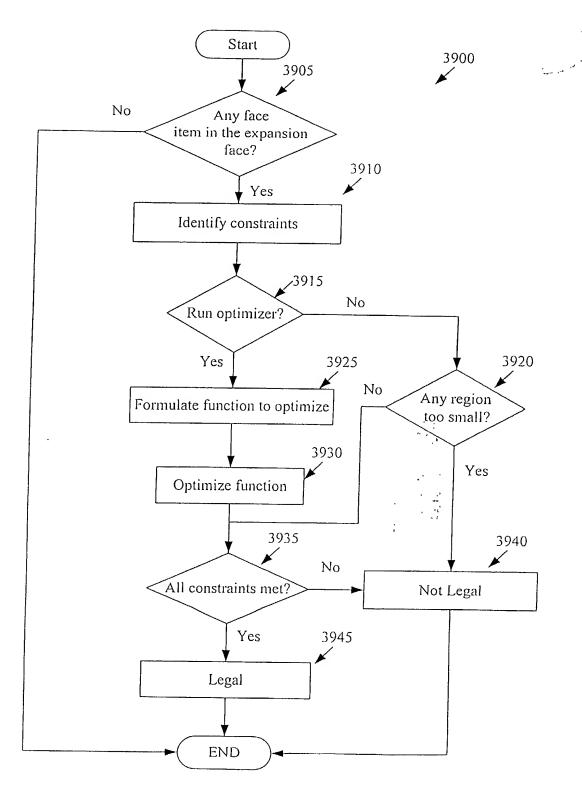


Figure 39A

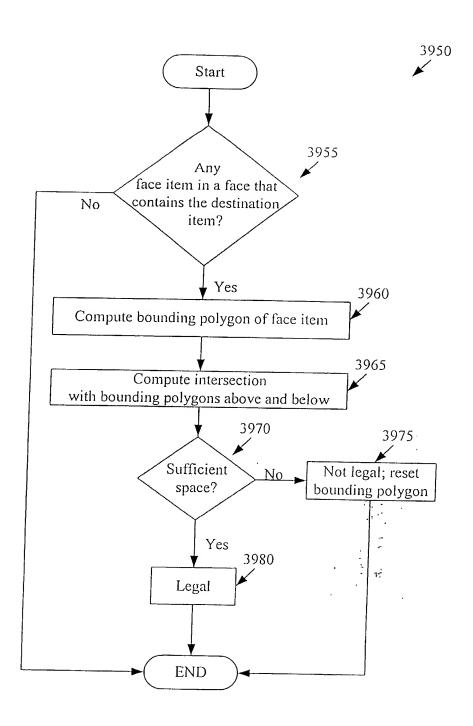
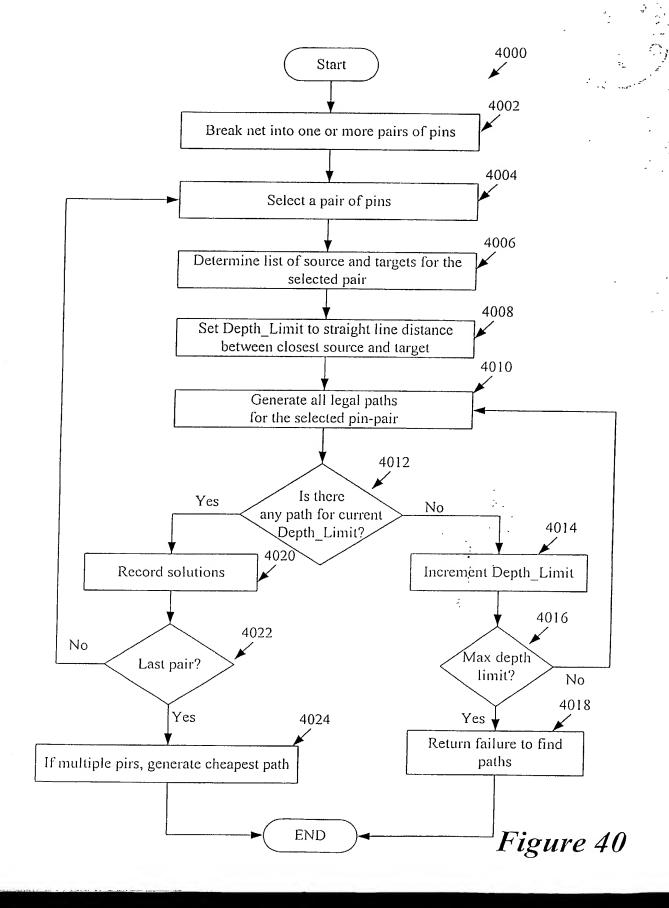


Figure 39B



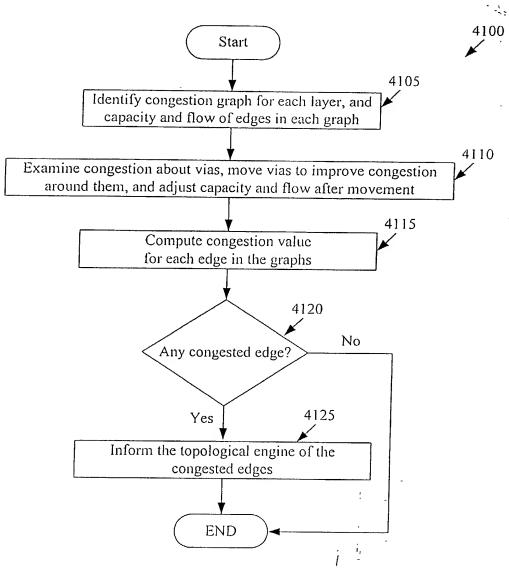
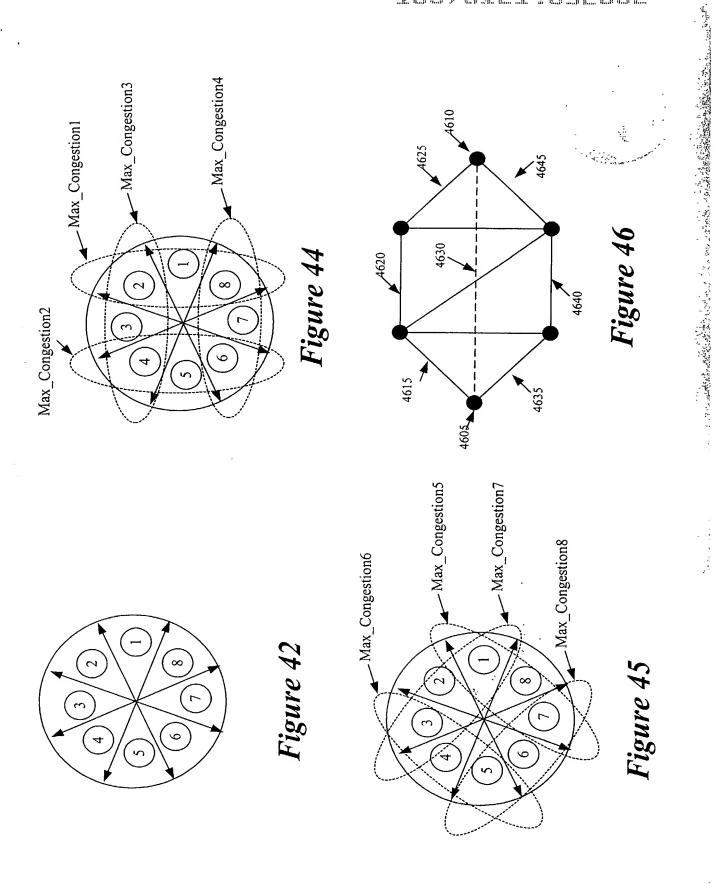
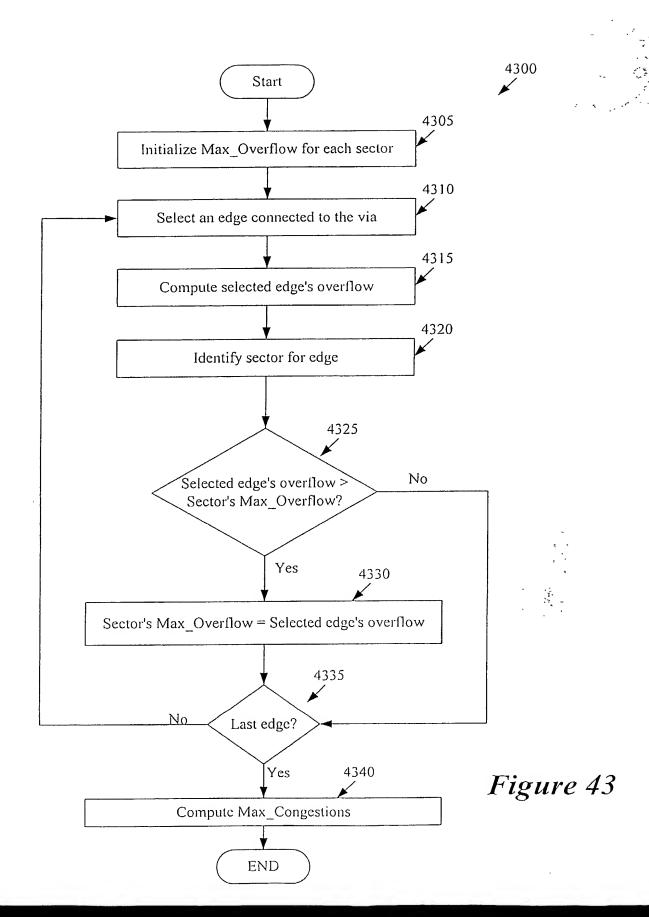


Figure 41





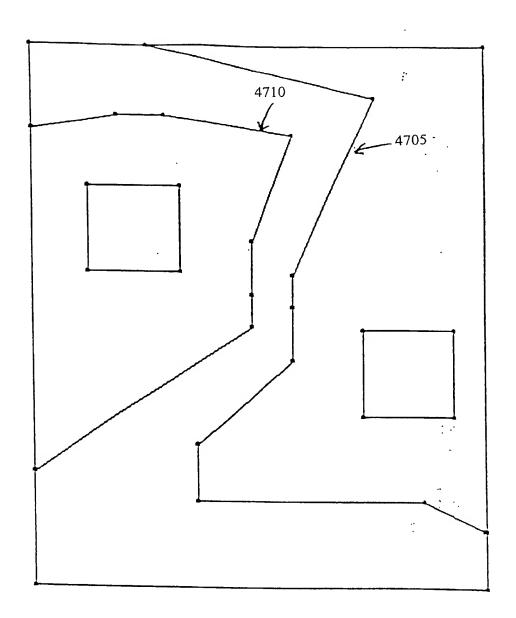


FIGURE 47

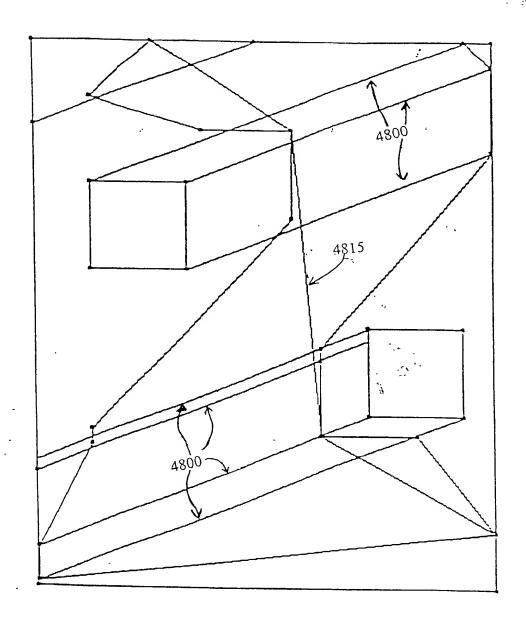


FIGURE 48A

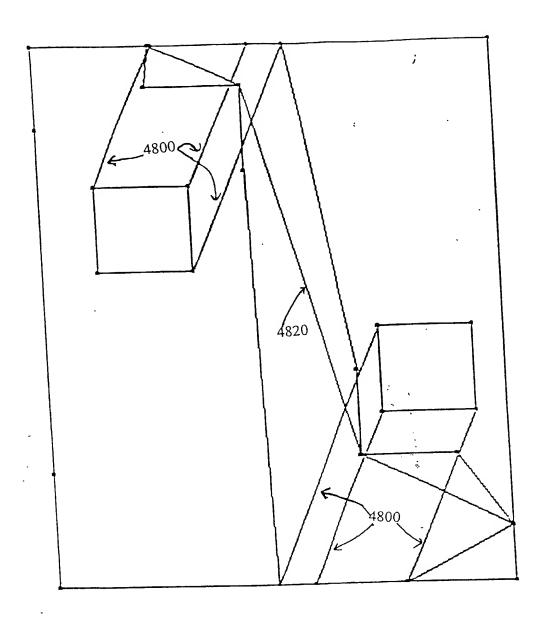


FIGURE 48B

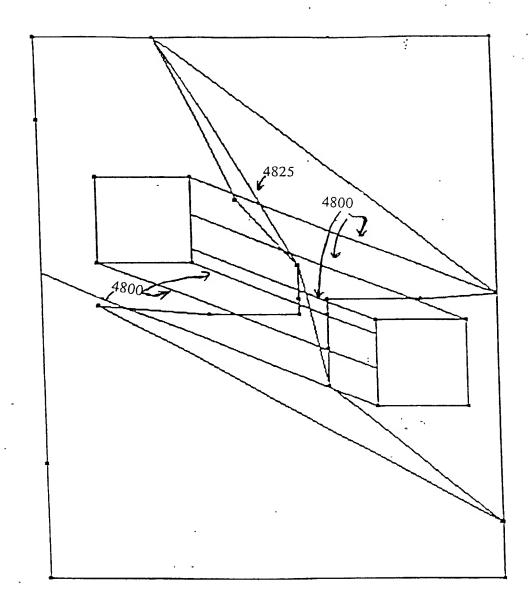


FIGURE 48C

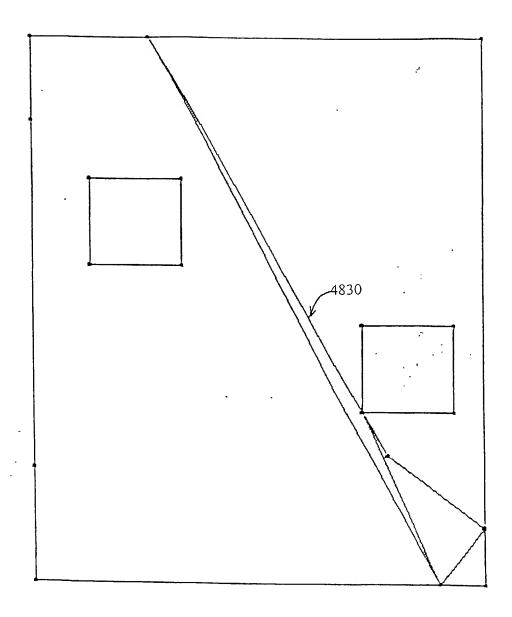


FIGURE 48D

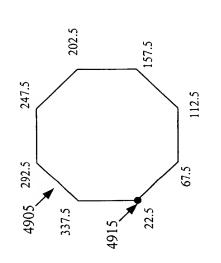
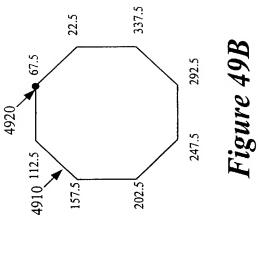


Figure 49A



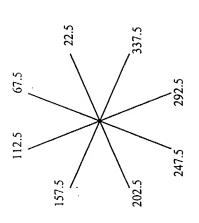


Figure 49C

Section of the contract of the

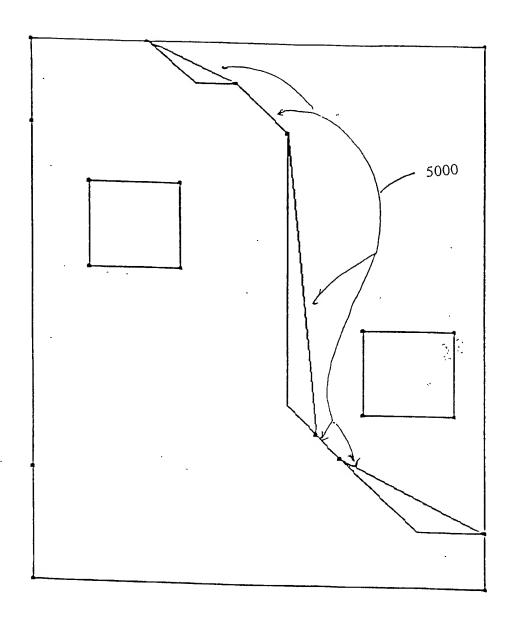


FIGURE 50

The state of the s

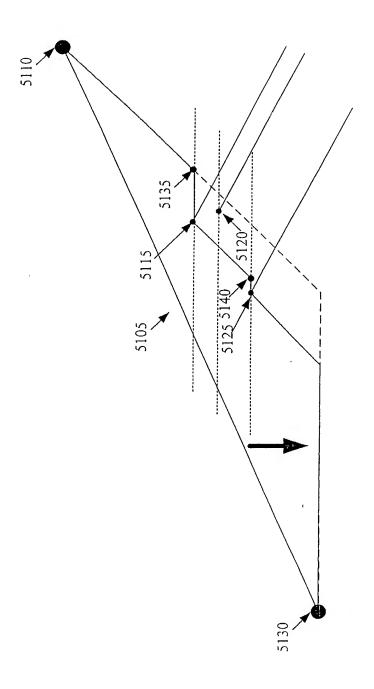


Figure 51

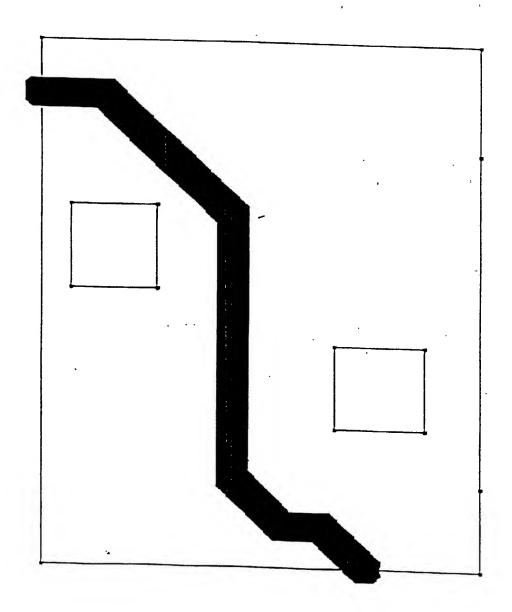


FIGURE 52

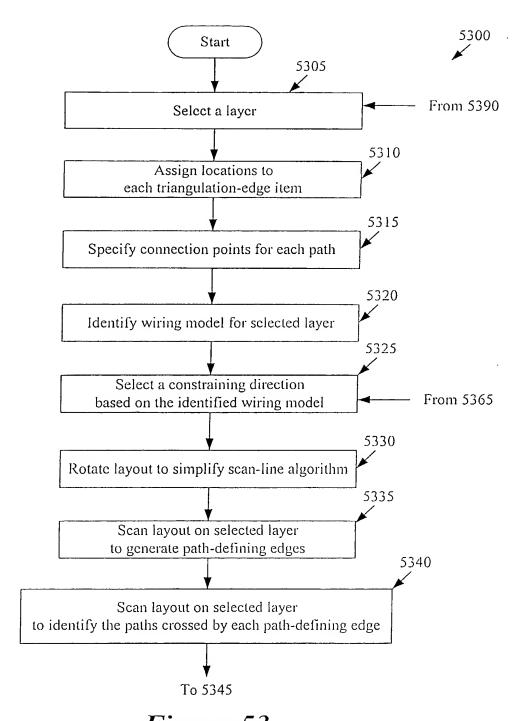


Figure 53

Figure 53: $\frac{Figure 53A}{Figure 53B}$

